**Module 3 HW: Wood heating systems implementation case studies - KEY**This assignment asks you to read a number of short wood chip heating case-studies. Those studies are found in “Biomass energy at work: case studies of community-scale systems in the US, Canada & Europe’, BERC (2010). This document is linked along with this HW set.

1. The elementary and high schools in Council, Idaho are now heated with a wood chip system.

(a) Why did Council’s location suggest that wood would be a good heating fuel?  
(b) How was the new wood chip system financed?  
(c) What is the largest technical problem the project has faced?

(d) How much did the schools save on heating fuel during their first year with wood?

1. The biggest problem that a group of schools in Darby, Montana had after converting to wood chips was fuel quality.

(a) How does the article describe ‘hogfuel’?  
(b) What type of chips do the schools use now?

1. The wood chip boiler in Leavitt Area High School, Turner, Maine was the first wood-heat system installed in a Maine school. The plan to convert to wood was met with skepticism.

(a) How did the superintendent deal with those he thought would be most critical of the project?

(b) The federal government, funding most of the project, was also skeptical. What did they require before agreeing to wood heat?

(c) How long did it take to win over maintenance staff?

(d) How much of the school’s heating need was met with wood in the first year of operation?

(e) How much money was saved on fuel from 2002 to 2007?

(f) How reliable has the system been?

(g) How much labor is required on a daily basis?

1. When two schools in Foster and Glocester, Rhode Island considered moving to wood chip heating systems locals were very skeptical. List three steps biomass proponents took to overcome local resistance.
2. Middlebury College has pledged to become carbon neutral by 2016; they’re on track though not quite there yet.

(a) How much did their wood chip system cost?

(b) While sustainability was a driver for change, so was the rising cost of oil fuel. How much did number 6 fuel oil prices rise from 2004 to 2008?

(c) The college wanted to supply half of the biomass needed. What project did they undertake to do this? How much land would they need for half of the biomass needed for the biomass plant?

(d) What sort of biomass system did the college install?

1. The wood chip system at the Kings County Memorial Hospital, Montague, PEI Canada was installed in 1982 and is the oldest wood chip system in the province.

(a) How large is the wood chip system?

(b) How many tons of chips are burned each year?

(c) Where do they get the chips?

(d) What are the biggest problems they have with their fuel? How do they test fuel quality?

(e) How much repair has been needed since 1982?

(f) How would the operator like to ensure the quality of his fuel supply?

1. The Green Acres Public Housing Complex in Barre, Vermont is now heated by a wood chip fueled district heating system.

(a) How much were residents paying per month to heat their apartments with electric?

(b) How did costs change after the wood chip system was installed?

(c) What was the most critical lesson learned after 10 years of running the system?  
(d) How was the new system funded?